THE RELATIONSHIP BETWEEN PREFERENCE FOR STIMULUS VARIABILITY AND ANTISOCIAL BEHAVIOR IN ADOLESCENTS

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CHAPTER I

Introduction

The salience of variability in stimulation as a motivational construct has been emphasized by numerous writers (Hunt, 1965; Fiske and Maddi, 1961; Berlyne, 1963). In order to make predictions about behavior from this theoretical construct, "attention must be directed both to the variability of the environment and to the structure of the person" (Munsinger and Kessen, 1964). To date, research has emphasized environmental variability in stimulation, while ignoring the "structure of the person." The proposed investigation will focus on the latter construct, "structure of the person," and will be concerned with adolescent delinquents' expressed preference for variability in stimulation.

According to Quay (1965), the behavior of the psychopath represents an attempt to satisfy an exaggerated need for increase or change in the pattern of stimulation. He suggests that the antisocial quality of the psychopath's behavior is incidental to his inordinate need for stimulation. The psychopath's behavior is antisocial because many stimulating activities in our society are defined as antisocial. Quay describes the psychopath as follows:

> His penchant for creating excitement for the moment without regard for the later consequences seems almost unlimited. He is unable to tolerate routine and boredom. While he may engage in antisocial, even vicious behavior his outbursts frequently appear to be motivated by little more than a need for thrill and excitement....It may be possible, then to view much of the impulsivity of the psychopath, his need to create excitement and adventure, his thrill-seeking

> behavior, and his inability to tolerate routine and boredom as a manifestation of an inordinate need for increase or changes in the pattern of stimulation.

According to Quay, "the basic hypothesis is that psychopathic behavior represents an extreme of stimulation-seeking behavior."

An experiment by Wiesen (1965) provides support for this hypothesis. Wiesen (1965) investigated the hypothesis that stimulation would be reinforcing to psychopaths. "Human" and "mechanical" stimulation served as reinforcers. Mechanical stimulation consisted of radio sounds and colored lights, whereas a standardized set of waving and nodding movements by the experimenter was defined as human stimulation. College students scoring high on scales 4-9 and 2-7 of the MMPI were used as subjects. The former were called psychopaths, and the latter anxiety neurotics. The psychopaths increased their frequency of responding when bright colored lights and radio sounds were used as reinforcers, whereas the anxiety neurotics decreased their frequency of responding under this type of reinforcement. When reinforcement consisted of briefly turning off the lights and radio, which were otherwise kept on at all times, the anxiety neurotics increased their responding, whereas the psychopaths decreased their responding. Although some trends were noted under the human stimulation condition, the conclusion was that human stimulation failed to discriminate better than chance between the groups.

Although operating from a different theoretical orientation, Petrie has arrived at a similar explanation of antisocial behavior. In a series of experiments, Petrie has been able to identify individuals who differ in the manner in which they cope with sensory stimulation. Subjects while blind-folded were required to estimate the size

of wooden blocks after being permitted to rub their fingers over the blocks. Subjects who consistently overestimate size are called Augmenters, and subjects who consistently underestimate are called Reducers. The former perceptually magnify the intensity of stimulation from the environment, whereas the latter subjectively diminish the intensity of environmental stimulation. Petrie, Collins, and Solomon (1958) found that Augmenters tolerate sensory deprivation better than Reducers, as evidenced by a willingness to remain in a tank-type respirator for a longer period of time. In contrast, Reducers tolerate more pain than Augmenters. The test for pain was the tolerance for concentration of radiant heat upon the skin.

In two experiments, Petrie has shown that it is possible to differentiate antisocial personalities within this schema. Using the Maudsley questionnaire developed by Eysenck, Petrie et al. (1960) found that subjects scoring high on sociopathy performed in a manner similar to Reducers on the perceptual task described above. These subjects also tolerated pain in the same manner as did the Reducers.

Petrie et al. also studied the perceptual patterns of juvenile delinquents. The delinquent group was found to contain significantly more Reducers and particularly more extreme Reducers than the non-delinquent group. Petrie et al. (1962) hypothesized that the delinquent is in a state of threatened perceptual deprivation, and that solitary confinement would be very punishing to him. They state that "in order to hang on to his feeling of reality, the delinquent needs sensory input such as change and speed, bright colors, music and company."

Skrzypek (1966) investigated institutionalized delinquents' preference for novelty and stimulus complexity. Using Quay's Behavior

Rating Checklist, he identified a group of "psychopathic" and a group of "neurotic" delinquents. Subjects were exposed to a 40-minute perceptual isolation condition, and a relatively intense arousal condition. At pre-test, the psychopathic group had significantly higher complexity and novelty preference scores than the neurotic group. The psychopathic group also had significantly less anxiety than the neurotic group, as measured by the Anxiety Differential. Both groups significantly increased their stimulus complexity preference scores following isolation, but the increase from pre- to post-test for psychopaths was significantly greater than the increase for neurotics. Under the arousal condition, the psychopaths' scores did not shift significantly, whereas the neurotics' complexity preference scores increased significantly.

Two possibilities have been advanced by Quay to account for individual differences in preference for increased and varied sensory input. "The first is that basal reactivity to stimulation is lowered so that more sensory input is needed to produce efficient and subjectively pleasurable cortical functioning. A second possibility is that there is more rapid adaptation to stimulation which causes the need for stimulation to occur more rapidly" (Quay, 1965).

Quay feels that studies of autonomic reactivity in psychopaths and delinquents are relevant to his basic hypothesis. Ruilmann & Gulo (1950) contrasted GSR, heart rate, and respiration measures of psychopaths and medical students. The psychopath "exhibited significantly smaller deflections and much more rapid recovery times under neutral and emotion-inducing conditions." Hare (1965a) found that psychopathic subjects showed less increase in palmar skin conductance in the interval prior

to anticipated shock than did nonpsychopathic subjects. In a GSR conditioning study conducted by Lykken (1957), and replicated by Hare (1965b), it was found that psychopaths were much slower to develop GSR responses than controls. In addition, testing for generalization, Hare (1965b) found that conditioned GSR responses, once acquired, are generalized less by psychopaths than by nonpsychopaths.

The experiments reviewed report consistent differences between so-called psychopaths and comparison groups on autonomic reactivity measures in a variety of conditions. Quay (1965) interprets the evidence to indicate both a lowered reactivity and a more rapid adaptation to stimulation in psychopaths.

In a recent study, Fox and Lippert (1963) compared spontaneous GSR activity in ten male juvenile offenders who had been diagnosed as psychopathic with a group of ten male offenders who had received the diagnosis of inadequate personality. The psychopathic group exhibited significantly less spontaneous activity. In light of this finding, it is interesting that Mundy-Castle and McKiever (1953) have shown that subjects with few spontaneous GSR responses adapted rapidly to a repetitive stimulus while those with more spontaneous GSR activity did not adapt.

Finally, Schachter and Latane (1964) have conducted an interesting drug study on sociopaths which indirectly supports Quay's position. In a preliminary study, these authors replicated Lykken's (1957) classical study on sociopaths which found that sociopaths show virtually no avoidance learning. Then, epinephrine was injected in all the subjects. The epinephrine had no effect on avoidance learning in the controls. However, by stimulating the sociopaths with epinephrine, avoidance learning similar to the control group was obtained.

Problem

In the review of the literature, there is some evidence in support of the hypothesis that there are individual differences in preference for variability or complexity in stimulation. In particular, people identified as "psychopathic" seem to be less reactive to stimulation, to adapt more readily, and to prefer more variable stimulation.

The present investigation sought to extend Quay's stimulation seeking hypothesis by determining if it applies to adolescents who are not necessarily psychopathic, but whose antisoical behavior represents a problem to the school and the community. Thus, it extended the parameters of the stimulation seeking hypothesis by testing its relevance in a less severe group of adolescents who may be the population from which psychopaths are drawn.

CHAPTER II

Method

This research investigated the preference of acting out and of normal adolescents for simple or complex stimulation in two sensory channels.

Stimulus Material

Visual. The visual measure of stimulus variability was constructed by Munsinger and Kessen (1964), and is fully described in their monograph. It consists of random shapes of different complexity, with complexity defined as the number of sides in a figure. The shapes were constructed on a 100 x 100 cm matrix. Coordinates in this matrix were randomly selected and randomly connected to generate a shape. The connecting process followed a set of rules involving two steps. First, peripheral points were randomly connected to form a complex polygon. Then any remaining internal points were randomly connected to external points with the limitation that lines connecting points were not permitted to cross. Nine shapes of 3, 4, 6, 10, 13, 16, 25, 31 and 40 points were used in the present study. These were reproduced and enlarged from Munsinger and Kessen's (1964) monograph, and mounted on 4 x 8 index cards.

Previous research with these random shapes indicates that adults show a modal preference for figures of ten points (Munsinger and Kessen, 1964). In this same study, art students demonstrated a preference for figures of higher complexity. Munsinger, Kessen, and Kessen (1964) studied children's preference for random shapes. The combined group of children of all ages showed a preference for ten-point figures.

However, within this group, younger children (first and third graders) showed a marked preference for higher levels of complexity in contrast to their older schoolmates (seventh graders). Preference of seventh graders was similar to the preference of college undergraduates. In the study reported above by Skrzypek (1966) in which "psychopathic delinquents" preferred more stimulus complexity than "neurotic delinquents," Munsinger and Kessen's set of random shapes was the dependent variable measure.

Auditory. The auditory measure of stimulus variability and stimulus intensity is a tape recording of narrow band noise, and white noise generated by an audiometer. White noise is an auditory stimulus containing all frequencies in the spectrum from ten to 10,000 cps at equal intensity, and narrow band noise is filtered white noise of critical band widths centered at given frequencies. The tape consists of 24 pairs of sounds of three seconds duration each, with a three-second interval between members of a pair, and a five-second interval between pairs.

Stimulus intensity was represented by ten pairings of tape recorded white noise of differing decibel levels. Seven samples of white noise were recorded from an audiometer. The loudness range was from 30 to 90 db, in ten db increments. From this sample, the following pairs of sounds were spliced together with three seconds of filler tape between pair members: 60db-30db; 60db-90db; 80db-60db; 30db-80db; 90db-40db; 90db-70db; 40db-60db; 90db-30db; 40db-80db; 50db-70db. The pairings were made on an arbitrary basis, with the goal of obtaining a representative sample of pairings from all possible pairs.

The measure of auditory stimulus variability was constructed from seven samples of tape recorded narrow band noise of 250, 500, 1000, 2000,

4000, 6000, and 8000 cps. Again, the duration of each stimulus was three seconds, and stimuli were presented in pairs with a three-second interstimulus interval. All narrow band noise samples were recorded from audiometer set at 90 decibels. The concept of "variability" was defined as the number of different sounds (or shifts) within a given three second period, with a possible range from zero shifts, or a constant sound, to eight shifts. In addition, any given sound could be on for a period of from one-fourth to three seconds, with one-fourth second increments. For example, one three-second stimulus with four shifts consisted of one-fourth second of 8000 cps, followed immediately by one second of 6000 cps, one-half second of 500 cps, and one and one-quarter seconds of 1000 cps. Using a modified paried comparison design, the following fourteen pairings were obtained in which the numbers represent the number of shifts in a given three second period: 7-3, 5-1; 4-8; 4-7; 6-1; 5-2; 8-5; 1-4; 2-6; 6-8; 3-6; 8-2; 2-7; 8-3. The determination of the narrow band noise frequencies, and the duration of onset of a given frequency, was accomplished randomly, with the limitation that a sound of the same frequency could not appear twice in the same three second stimulus until all seven frequencies had been sampled.

The final tape is a continuous recording of 24 pairs of sounds, with intensity pairs and variability pairs randomly distributed throughout the tape. Although the terms "variability" and "complexity" are used interchangeably in the literature, the labels "intensity" and "variability" are used in the present study to refer to the auditory stimuli, and the term "complexity" to refer to the visual stimulus.

Subjects

Subjects were students in one Senior High and three Junior High Schools. There were three comparison groups: 27 subjects who had juvenile court records, 27 control subjects matched to the court group, and 32 subjects identified by the school as discipline problems.

The names of students with juvenile court records were obtained. All males who were in the same classroom as the court subjects participated in the experiment. This procedure was followed to avoid singling out the experimental subjects. Following this procedure, the assistant principal in each school identified the boys in each group whom he judged to be discipline problems to the school. A total of 611 subjects particpated in the experiment.

The 27 control subjects were matched to the experimental court subjects on the following variables: school, test administration group, age and socioeconomic status. Socioeconomic status was established, using a method based on the father's occupation. This method, developed by the U.S. Census Bureau (1963), assigns scores from one to 100 to all occupations according to the combined average levels of education and incomes for the given occupation.

Procedure

Subjects were tested in groups of 20 to 50 Ss. Each S received an answer sheet on which he was instructed to write his name, age, school grade, and father's occupation. The answer sheet had two sets of numbers from one to 36, with the capital letters A and B beside each number.

In all cases, Ss responded first to the random shapes. The visual stimuli were presented in a complete paired comparison design according

to an ordering procedure developed by Ross (1934). The resulting set of 36 stimulus pairs was projected on a screen with an opaque projector. The letters A and B were inscribed beneath the right and left shapes respectively. In displaying the shapes for judgment, each pair was exposed for approximately five seconds, with a negligible interval between pairs. In a previous study (Munsinger and Kessen, 1964), it was shown that exposure time did not affect results. Ss were informally told about the visual stimulus material, and were instructed in the following manner:

> I will show you a series of figures, two at a time. I want you to tell me which of the two shapes you like better. Draw a line through the A on your sheet if you like figure A, and through the B on your sheet if you like figure B. I will call out the numbers to help you keep track of where you are. Are there any questions?

When Ss had registered their preference for the 36 shapes, they were introduced to the auditory stimuli with the following instructions:

> The second part of the experiment is similar to the first part, except this time, you will listen to pairs of sounds from the tape recorder, and indicate on your answer sheet which sound you like better. You will hear a sound which will last three seconds, then there will be a three-second pause, and then you will hear the second sound which will also last three seconds. If you like the first sound, draw a line through the letter A on your sheet. If you like the second sound, draw a line through the letter B on your answer sheet. Are there any questions?

The examiner answered Ss' questions, and proceeded to play the tape, indicating verbally to Ss the number of each pair. The examiner generally stopped the tape recorder before each pair presentation, to insure that there was complete silence while the sounds were being played. This resulted in an interstimulus interval of approximately five to 15 seconds. The same tape recorder, a Wollensak model fifteen-seventy, was used throughout the experiment, and the volume and tone settings

remained constant.

Hypotheses and Design

(1) The court group will show a preference for greater stimulus complexity, variability, and intensity than the control group.

(2) The preference for stimulus complexity, variability, and intensity of the discipline group will be intermediate between the above two groups.

One-way analysis of variance was computed on each of the three dependent variable measures across groups to provide a test of the main hypotheses. In addition, Pearson r's were computed between the dependent variable measures. The .05 level will be the criterion for significance in all comparisons.

CHAPTER III

Results

The primary dependent variable measures are the number of times subjects preferred (1) the more complex shape in a pair, (2) the more variable auditory stimulus in a pair, and (3) the louder sound in a pair. The maximum scores for each S are 36, 14 and 10 respectively. A composite score representing the summation of the above three scores was also computed.

A comment on the stability of the preference scores across the three Junior High Schools is relevant (see Table 12). The similarity of the group means among the schools can be interpreted as an index of reliability of the dependent variable measures. The lower mean preference scores in the Senior High are apparently explained in terms of the age of the subjects. Munsinger, Kessen, and Kessen (1964) found an inverse relationship between age and preference for stimulus complexity.

Table 1 presents the means and SD's of the preference scores across groups. Inspection of Table 1 shows that the court group preferred more complex shapes, more variable sounds, and louder sounds than the control group. The discipline group's preference scores were intermediate between the above groups for shapes and auditory variability. In their preference for auditory intensity, the discipline group's mean is lower than both the court and the control group.

The summaries of the analyses of variance of the three groups' preference scores are presented in Tables 2, 3 and 4. These tables

Table 1. Means and SD's of the comparison group's preference scores

		Court	Discipline	Control	Total
Shapes	N	27	32	27	86
	M	24.52	22.75	21	22.75
	SD	8.25	7.26	9.57	
Auditory Variability	N	26	32	26	84
	M	9.96	9.28	8.23	9.17
	SD	3.27	2.95	3.34	
Auditory Intensity	N	26	32	26	84
	M	6.77	5.94	6.38	6.33
	SD	3.05	3.11	3.23	
Composite Score	N	26	32	26	84
	M	40.96	37.97	35.15	38.02
	SD	10.21	10.17	12.67	

Table 2. Analysis of variance of preference for shapes across groups

Source	Sum of Squares	df	MS	F	P
Groups	166.87	2	83.44	1.20	N.S.
Within groups	5783	83	69.68		
Total	5949.87	85			

Table 3. Analysis of variance of preference for shapes across groups

Source	Sum of Squares	df	MS	F	P
Groups	39.62	2	19.81	1.97	N.S.
Within groups	816.05	81	10.07		
Total	855.67	83			

Table 4. Analysis of variance of preference for auditory intensity across groups

Source	Sum of Squares	df	MS	F	P
Groups	10.02	2	5.01	.51	N.S.
Within groups	792.65	81	9.79		
Total	802.67	83			

Table 5. Correlations between verbal IQ, non-verbal IQ, and groups for each dependent variable measure

	Court			Control			Discipline		
	Sh.	Var.	Int.	Sh.	Var.	Int.	Sh.	Var.	Int.
Verbal IQ	.25	-.16	.02	.04	-.10	.26	.07	-.33	-.06
Non-Verbal IQ	.24	-.24	.21	.06	.05	.26	-.13	-.31	-.37*

* .05

show that the differences observed in Table 1 fail to achieve statistical significance.

After the preference data had been analyzed and it was noted that the mean preference scores across groups were in the direction predicted, although not statistically significant, a decision was made to obtain IQ scores on Ss from school records. It was speculated that intelligence might have a differential effect on the three groups.

Lorge-Thorndike verbal and non-verbal IQ's were obtained on Ss in the three groups. Scores were available on 21 court Ss, 20 controls, and 23 discipline Ss. The correlations between verbal and non verbal IQ, and the dependent variable measures are presented in Table 5. Inspection of Table 5 indicates that the expectation of a consistent differential relationship between IQ and the dependent variable measures was not upheld. Of the 18 correlations computed, one is significant at .05, suggesting that it is a chance finding.

Recognizing that the assumption of homogeneity of within-class regression is possibly violated[1] in some cases, six analyses of covariance were computed with IQ as the X-covariate (Tables 6,7,8,9, 10,11). The analysis of covariance of complexity and variability scores for verbal and non verbal IQ failed to reach the .05 level of significance. Analysis of covariance of the intensity scores showed significant differences for both IQ dimensions. However, an analysis of variance of the same data also showed significant differences

[1] There are three assumptions underlying analysis of covariance. According to Winer (1962, page 586), "F tests in the analysis of covariance are robust with respect to violation of the two assumptions, normality and homogeneity of the residual variance." He further states that "the effect of non-homogeneity of within-class regression has not been studied."

Table 6. Analysis of covariance with verbal IQ as the x-covariate and preference for complexity as the y-covariate

Source	Sum of Squares	df	MS	F	P
Groups	97.8	2	48.9	.80	N.S.
Error	3857.1	63	61.22		
Total	3954.9	65			

Table 7. Analysis of covariance with verbal IQ as the x-covariate and preference for variability as the y-covariate

Source	Sum of Squares	df	MS	F	P
Groups	37.20	2	18.6	1.96	N.S.
Error	578.91	61	9.49		
Total	616.11	63			

Table 8. Analysis of covariance with verbal IQ as the x-covariate and preference for intensity as the y-covariate

Source	Sum of Squares	df	MS	F	P
Groups	89	2	44.5	4.80	.05
Error	565.45	61	9.27		
Total	654.45	63			

Table 9. Analysis of covariance with non-verbal IQ as the x-covariate and preference for visual complexity as the y-covariate

Source	Sum of Squares	df	MS	F	P
Groups	101.00	2	50.5	.82	N.S.
Error	3897.30	63	61.86		
Total	3998.30	65			

Table 10. Analysis of covariance with non-verbal IQ as the x-covariate and preference for auditory variability as the y-covariate

Source	Sum of Squares	df	MS	F	P
Groups	36.32	2	18.16	1.89	N.S.
Error	586.71	61	9.62		
Total	623.03	63			

Table 11. Analysis of covariance with non-verbal IQ as the x-covariate and preference for auditory intensity as the y-covariate

Source	Sum of Squares	df	MS	F	P
Groups	87.68	2	43.84	4.73	.05
Error	564.66	61	9.26		
Total	652.34	63			

Table 12. Mean preference scores in the four schools

		Senior High	Junior High I	Junior High II	Junior High III	Total
Shapes	N	198	95	121	166	580
	M	18.61	23.67	23.62	23.12	21.78
Aud. Var.	N	197	95	120	199	611
	M	8.97	10.28	9.04	10.33	9.63
Aud. Int.	N	197	95	120	199	611
	M	5.76	6.96	6.17	6	6.10
Comp. Score	N	197	95	120	166	578
	M	33.39	40.92	38.76	39.64	37.54

Table 13. Matrix of correlations among dependent variable measures across groups

	Shapes	Auditory Variability	Auditory Intensity	Composite
Shapes	--	.31**	.23*	.89**
Auditory Variability	--	--	.37**	.62**
Auditory Intensity	--	--	--	.18

* .05
** .01

($F=4.82$, $df=2, 61$, $p= .05$), indicating that the differences were not due to IQ, but rather to sampling. Since IQ scores were available on 66 of the original 84 subjects, the revised composition of the groups had the effect of increasing differences on the intensity dimension.

Table 12 presents the preference scores of all subjects in the four schools. Students in the Senior High have lower mean scores than the three Junior High schools. The variation between the Senior High and the three Junior High Schools aroused curiosity about the selection of the 26 control Ss. A second control group was selected in the same manner as the original control group. There was no difference between the two control groups on the composite score measure ($t=.65$), indicating that they were both selected from the same population.

To examine the relationship among the dependent variable measures, Pearson r's were computed among the four scores across groups. Table 13 shows significant positive relationships between all scores except composite-intensity.

CHAPTER IV

Discussion

The results suggest that adolescents who engage in antisocial behavior are not different from their peers of the same age, intelligence, and socioeconomic status in their preference for stimulus complexity, stimulus variability, and stimulus intensity. Although the trends between groups were generally in the direction predicted, the mean differences were small, and it is unlikely that they reflect a causative relationship between acting out behavior and need for stimulation.

One explanation of the results is that the groups were not different. Behaviorally, there were vast differences between the court and control groups, although the assumption that the behavior of the discipline group represents an intermediate position on a continuum of antisocial behavior is questionable. It can be expected that variables other than school behavior entered into the process of nominating students for the discipline group. It is also possible that some control subjects were "unidentified" delinquents, giving rise to some overlap between the groups, but the probability of so-called juvenile delinquents' being represented in the court group was much higher.

The results may also be accounted for by the procedure of group administration. The effect, if any, of group administration was probably to disguise predicted differences between the groups. In support of this notion, the writer administered the visual stimuli to two delinquent boys with whom he was acquainted. In almost all pairs,

both boys chose the most complex shapes, commenting that the low complexity shapes were "dull" and "boring." Conversely, in individual administration of the shapes to "normal" adolescents, their response patterns were similar to the control subjects in the present experiment, in that they chose the most complex shapes about half of the time. Hypothetically, in an identical experiment in which individual administration was used instead of group administration, it might be expected that the delinquents' scores would be shifted upward, but that the control subjects' scores would remain the same.

An explanation of why delinquents might respond differently in group than in individual administration is suggested by Hare (1966). Hare observed that psychopaths respond in psychological experiments in a manner to avoid appearing deviant. If such a process is valid, and if it can further be assumed that the court subjects as a group were more psychopathic than the controls, then the anonymity of group administration, and the opportunity to obtain cues on other subjects' responding, might have made it easier for the court subjects to bias their responses. It can also be speculated that the more "delinquent" students sat at the back of the room, and as a result perceived the auditory stimuli as less intense.

Published research by Wiesen (1965), Skrzypek (1966), and Petrie et al. (1965), and an aritcle by Quay (1965) provided the theoretical basis for this experiment. Since these publications referred to psychopathic or institutionalized populations, the results of the present study do not bear directly on their predictions. However, results from this study indicate that there is a limitation on the generalizability of the stimulation-seeking hypothesis. In particular, the

generalization by Petrie et al. (1965) that delinquent behavior can be explained in terms of need for stimulation is somewhat qualified.

The significance of the present study is that it permits some tentative conclusions about the applicability of the stimulation seeking hypothesis to adolescents who engage in antisocial behavior. Kyrzypek (1966) found that only a small percentage of boys institutionalized for criminal behavior met his criteria of psychopathic delinquent. Based on this finding, it can be expected that only a few subjects in the court group and the discipline group could be defined as "psychopathic delinquent." The significance of this distinction stems from the incidence of adolescent psychopaths, in contrast to delinquents, in the population. Whereas psychopaths represent a negligible per cent of the population, delinquents, using common legal and social definitions, are numerous. Thus, for school teachers, juvenile court workers, social workers, and other people who are in daily contact with delinquents, the stimulation-seeking hypothesis would have practical application in only a small proportion of their contacts. However, from personal contact with individuals who work with delinquent children, a common complaint is that a minority of their caseload occupies the bulk of their time. It can be speculated that this minority of severe problem adolescents would meet Quay's (1965) criteria of "psychopathic delinquent" and hence, their behavior might be explained in terms of the stimulation-seeking hypothesis. However, further research is necessary to evaluate this assumption. On the basis of this study, and previous research, it must be concluded that there is no evidence to suggest that antisocial acting out behavior per se is explainable in terms of the stimulation-seeking hypothesis.

Suggestions for Further Research

In a partial replication and extension of this study, several modifications in methodology are indicated. A possible source of error in this study was the procedure of group administration. Individual administration to a sample of subjects from the same classroom as the experimental subject(s) could be carried out to preserve the benefit of not identifying delinquent subjects, while eliminating the stated disadvantage of group administration. Experimental subjects could also be introduced. In the identification of the experimental subjects, a further distinction could be made in terms of the amount of time the school or the court invests in a given boy.

Subjects could also be identified on the "psychopathic delinquent" dimension suggested by Quay to permit greater generalization of results. However, it should be noted that such a distinction in the present study could not have altered the primary conclusion that there is no relationship between delinquent behavior and preference for stimulus complexity, variability, and intensity. In identifying subjects in Quay's scheme, it is suggested that the single dimension of "psychopathic delinquent" groups is contrasted. The writer is critical of this procedure since Quay's theorizing does not make predictions about neurotic delinquents. The validity of this procedure, as it relates to Quay's hypothesis, is questionable.

Earlier, it was speculated that delinquents would choose the high complexity stimulus in a series about half of the time to avoid revealing anything about themselves. An adjustment in the dependent variable measures could be made to correct for this potential source of error. At present, "normal" subjects choose the high complexity shapes, high variability sounds, and high intensity sounds about 50

per cent of the time. Stimulus pairs could be constructed so that the mean choice of normal subjects would be considerably below the present 50 per cent figure. For example, the mean choice of Shapes by 611 subjects was 22. It would be desirable to shift this mean choice downward to approximately 11 or 12. This could be accomplished by experimenting with different pairs of figures administered to normal groups of adolescents until the desired skewness in the distribution of preference scores was obtained. If the real preference of adolescent delinquents for stimulus complexity is similar to their non-delinquent peers, their preference scores will be similarly skewed. However, if they have a preference for high complexity, but are inhibiting their responses in the manner suggested above, the distribution of their preference scores will approach normality.

The implication of this is that the present study may not adequately evaluate the relationship between delinquent behavior and preference for stimulus complexity, variability, and intensity. If the suggested changes also fail to provide a basis for prediction, it may be necessary to abandon this hypothesis, or restrict its application to institutionalized delinquent populations.

CHAPTER V

Summary

This study was undertaken in order to determine if there is a positive relationship between preference for stimulus complexity, variability, and intensity, and different degrees of antisocial acting out behavior. This prediction represented an extension of the hypothesis advanced by Quay (1965) that the psychopath's behavior is motivated by an exaggerated need for variable and/or intense stimulation. The expectation was not upheld statistically, although obtained differences were in the predicted direction.

The dependent measures utilized in this study were (1) expressed preference for shapes of different complexity, (2) expressed preference for sounds of different variability, and (3) expressed preference for sounds of different decibel levels. The comparison groups were 27 adolescents with juvenile court records, 27 normal controls matched to the court group on age, socioeconomic status, and intelligence, and 32 subjects identified by the school as discipline problems. All subjects were high school students, and all testing was conducted in the schools in groups of 25 to 50 subjects.

It was speculated that the non-significant results could be accounted for in terms of the procedure of group test administration. The primary conclusion was that the stimulation-seeking hypothesis is not applicable to the majority of non-institutionalized adolescents who engage in antisocial acting out behavior.

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BIOGRAPHICAL SKETCH

Paul Henry Caron was born on March 7, 1941, in Ottawa, Canada. In June, 1959, he was graduated from Nepean High School, Ottawa, Canada. In September, 1959, he enrolled at the University of Florida, Gainesville, Florida, where he received the Bachelor of Arts degree with honors in April, 1963. In September, 1963, he enrolled in the Graduate School of the University of Florida, where he worked and studied as a graduate research assistant in the Department of Psychology. He received his Master of Arts degree in June, 1965. Since receiving his Master's degree he has been working on the completion of his doctoral dissertation in the area of juvenile delinquency and completing his practicum and internship studies in clinical psychology. After he receives his Ph.D. degree he plans to pursue research in the area of juvenile delinquency and sensory deprivation, and undertake clinical work with adolescents and adults.

This dissertation was prepared under the direction of the chairman of the candidate's supervisory committee and has been approved by all members of that committee. It was submitted to the Dean of the College of Arts and Sciences and to the Graduate Council, and was approved as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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